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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/596,843

06/27/2006

Hideo Tanaka

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS

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EXAMINER

CHIEN, LUCY P

ART UNIT

PAPER NUMBER

2871

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DELIVERY MODE

05/21/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | |
|------------------------------|--------------------------------------|--------------------------------------|
| Office Action Summary | Application No. 10/596,843 | Applicant(s) TANAKA, HIDEO |
| | Examiner LUCY P. CHIEN | Art Unit 2871 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1,2,4,5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al (US 6407791) in view of Inoue et al (US 5781256).

Regarding Claim 1,4,

Suzuki et al discloses (Fig. 17, Fig. 18) a source electrode (57) and a drain electrode (58) formed on an insulating substrate (11) a gate insulating film (61) having a relatively thin film portion partially on said source electrode (57) and said drain electrode (58); and a gate bus layer (55) formed on said gate insulating film (61) including at least said thin film portion, wherein an MIM (Column 29, rows 50-56) structure is configured by said source electrode, said drain electrode, said gate insulating film in said thin film portion and said gate bus layer.

Suzuki et al does not disclose an interlayer insulating film between the substrate and the source and drain electrode.

Inoue et al discloses (column 1, rows 40-50) interlayer insulating film between the substrate and the source and drain electrode to reduce time dependent variations in the characteristics of the MIM element.

It would have been obvious to one of ordinary skill in the art to modify Suzuki et al to include an interlayer insulating film between the substrate and the source and drain electrode motivated by the desire to reduce time dependent variations in the characteristics of the MIM element (column 1, rows 40-50).

Regarding Claim 2,

In addition to Suzuki et al and Inoue et al as disclosed above, Suzuki discloses wherein a plurality of said MIM structures are connected in series. (see Fig. 17, TFT 54 can be replaced with a MIM, The other TFT/MIM is located at the top, diagonally above the labeled number 56).

Regarding Claim 5,

Suzuki et al discloses (Fig. 17, Fig. 18) 5. (original) forming an organic film (column 27, rows 65-67 to Column 28, rows 1-5) on said gate insulating film; exposing said organic film using a mask for which the amount of exposure in said thin film portion is relatively low, developing the exposed organic film; exposing said gate insulating film in said thin film portion by reducing the thickness of the developed organic film; and forming a hollow portion by etching said exposed gate insulating film.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al (US 6407791) and of Inoue et al (US 5781256) in view of Watanabe et al (US 5815223).

Regarding Claim 3,

Suzuki et al and Inoue et al discloses everything as disclosed above.

Suzuki et al and Inoue et al do not disclose wherein said thin film portion has a thickness of 50 nm or less.

Watanabe et al discloses wherein said thin film portion has a thickness of 10 to 200 nm which are overlapping range of 50 nm or less. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have thin film portion has a thickness of 10 to 200 nm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al (US 6407791) and of Inoue et al (US 5781256) in view of Nimura (US 20030174267)

Regarding Claim 6,

Suzuki et al and Inoue et al discloses everything as disclosed above.

Suzuki et al and Inoue et al do not disclose wherein said mask includes a portion having a relatively large amount of exposure, said organic film is exposed through said portion, and a contact-hole is formed in a region where the exposed organic film is developed.

Nimura et al discloses [0110] a portion having a relatively large amount of exposure in order to form a reliable contact hole.

It would have been obvious to one of ordinary skill in the art to modify Suzuki et al to include Nimura et al's relatively large amount of exposure motivated by the desire to form a reliable contact hole[0110].

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al (US 6407791) and of Inoue et al (US 5781256) in view of Hwang et al (US 20020158995).

Regarding Claim 7.

Suzuki et al and Inoue et al discloses everything as disclosed above.

Suzuki et al and Inoue et al do not disclose wherein a half-tone mask or a diffraction mask is used as said mask for which an amount of exposure in said thin film portion is relatively low.

Hwang et al discloses [0127] wherein a half-tone mask or a diffraction mask is used as said mask for which an amount of exposure in said thin film portion is relatively low.

It would have been obvious to one of ordinary skill in the art to modify Suzuki et al to include a half tone mask taught by Hwang et al motivated by the desire to form the desired layers and the amount of exposure to the thin portion is low [0127].

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUCY P. CHIEN whose telephone number is (571)272-8579. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571)272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lucy P Chien
Examiner
Art Unit 2871

/David Nelms/

Supervisory Patent Examiner, Art Unit 2871